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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/009,822	12/13/2001	Mitsuo Osada	Q67726	6202

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WASHINGTON, DC 20037

EXAMINER

LAVILLA, MICHAEL E

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 06/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/009,822

Applicant(s)

OSADA ET AL.

Examiner

LA VILLA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above, claim(s) 1-6, 13, and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on Dec 13, 2001 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.
2. This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.
3. In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.
4. Group I, claim(s) 1-6, 13, and 14, drawn to a material for a semiconductor mounting heat dissipation substrate.
5. Group II, claim(s) 7-12, drawn to a method of making a material for a semiconductor mounting heat dissipation substrate.
6. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The subject matter of Claim 1 in Group I is anticipated by Ichida Akira et al. JP 11-307701, which teaches a Cu/Mo composite of Mo powder compact infiltrated by Cu to provide the claimed CTE values. See Ichida Akira et al. (Abstract and whole document). Since the subject matter of Claim 1 is anticipated by the prior art, there can be no corresponding special technical feature between the claims in Groups I and II. Hence, Groups I and II do not relate to a single general inventive concept, and so restriction is appropriate.
7. During a telephone conversation with Mr. Kasper on 30 May 2003 a provisional election was made without traverse to prosecute the invention of Group II, claims 7-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-6, 13, and 14 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

9. Claims 7 and 12 are objected to because of the following informalities: The word "molybdenum" is misspelled at line 7 of each of Claims 7 and 12. Appropriate correction is required.
10. Claims 10 and 11 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 10 and 11 do not specify the relationship between the claimed coefficient of thermal expansion of the intermediate layer and the particular direction specified in Claim 7. Thus, they do not appear to be further limiting of Claim 7. With respect to Claim 10, it is not clear whether the claim is further limiting since there is recited a step of "rolling the copper-molybdenum composite as an intermediate layer with the ratio of copper and molybdenum and the reduction percentage controlled." It is unclear whether this language merely summarizes the steps in Claims 7 and 9 or supersedes the steps in Claims 7 and 9. The

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same unclearness applies to the latter step of "press-bonding" in Claim 10 and to the description of both steps in Claim 11. If there is to be superseding of the steps of the previous claims, Claims 10 and 11 are not further limiting.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

12. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- I. Regarding Claims 7, 8, 11, and 12, it is unclear whether the claims require that the claimed coefficient of linear expansion must be obtained throughout the claimed temperature range of 30-800°C.
- II. Regarding Claims 8, it is unclear whether the claimed "60% or more" working rate could not be achieved after the previously described 50% working rate during each rolling in two intersecting directions.
- III. Regarding Claims 10 and 11, it is unclear whether the phrase "reduction percentage" is synonymous with "working rate."
- IV. Regarding Claim 9, it is unclear what is meant by the phrase "type." The use of the word "type" is indefinite in a claim. See Ex parte Copenhaver, 109 USPQ 118. It is unclear whether this appellation of

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"copper clad type" means more than having copper plates press-bonded to both sides of the claimed rolled composite.

- V. Regarding Claims 10 and 11, Claims 10 and 11 do not specify the relationship between the claimed coefficient of thermal expansion of the intermediate layer and the particular direction specified in Claim 7. Thus, it is unclear whether the claimed coefficient of thermal expansion of the intermediate layer is to be necessarily obtained in any particular direction. With respect to Claim 10, it is unclear whether the recited step of "rolling the copper-molybdenum composite as an intermediate layer with the ratio of copper and molybdenum and the reduction percentage controlled" is limited by the already recited steps of Claim 7. The same unclearness applies to the latter step of "press-bonding" in Claim 10 with respect to Claim 9. It is unclear whether this language merely summarizes the steps in Claims 7 and 9 or supersedes the steps in Claims 7 and 9. The same unclearness applies to both steps in Claim 11.
- VI. Regarding Claim 12, last line, it is unclear what is meant by the phrase "metallize layer." Is this a layer that is comprised of metal or that is to be in contact with metal? It is unclear whether the claim mandates the position of this layer with respect to the copper-clad rolled composite and the ceramic. Must it be between the ceramic and composite, or not necessarily?

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Allowable Subject Matter

14. Claims 8-11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
15. Claims 7 and 12 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.
16. Neither the reviewed prior art nor the prior art of record appears to teach or suggest the claimed subject matter of Claims 7-12. With respect to Ichida Akira JP 11-307701, a working rate of at least 60% does not appear to be taught, since Ichida Akira teaches that the working rate should not exceed 40%. With respect to Norio Hirayama et al. JP 2000-216278, the claimed features, including working rate and thermal expansion coefficient, are not apparently all present in one exemplified method of article production, nor suggested by the teachings of Norio Hirayama et al.

CONCLUSION

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael La Villa whose telephone number is (703) 308-4428. The examiner can normally be reached on Monday through Friday.
18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Michael La Villa
June 2, 2003

A handwritten signature in black ink, appearing to read 'La Villa', written in a cursive style.